

PATENT ABSTRACTS OF JAPAN

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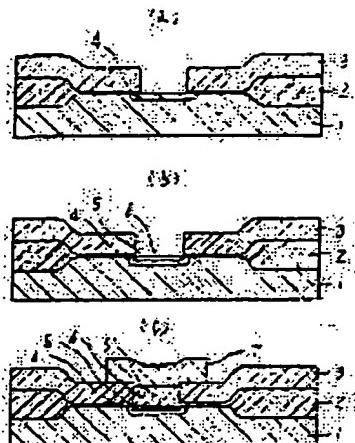
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 SAITO MASAYOSHI
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(54) MANUFACTURE OF SEMICONDUCTOR DEVICE

(57) Abstract:

PURPOSE: To completely fill a contact hole with W by forming a tungsten silicide or tungsten/tungsten silicide film on an Si by a reaction of WF6 with the Si at the initial of the reaction, and then growing a W film by H2 reducing reaction of the WF6 thereon.

CONSTITUTION: A phosphorus glass film 3 is deposited on a thermal oxide film 2 on a P-type silicon crystalline substrate 1. Then, after 1 contact hole is formed at the film 3, As ions are implanted, and heated to form an N+ type high concentration diffused layer 4 in the contact hole. A tungsten film 6/tungsten silicide film 5 are formed by a low pressure CVD method with WF6 and N2 on the contact. Thereafter, a tungsten film 6' is further grown on the contact by a low pressure CVD method with the WF6 and H2. Subsequently, aluminum electrodes 7 are formed. Similar result can be obtained by employing a CVD oxide film silicon nitride, BPSG, SOG, etc., instead of the film 3.



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TI - MANUFACTURE OF SEMICONDUCTOR DEVICE

IN - KOBAYASHI NOBUYOSHI;SAITO MASAYOSHI;SUZUKI MASAYASU

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TI - Tungsten electrode burying method - by CVD of tungsten hexafluoride to form deposited tungsten using reaction with hydrogen NoAbstract Dwg 2/2

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PN - JP1064318 A 19890310

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AP - JP19870220144 19870904

IN - KOBAYASHI NOBUYOSHI; others:02

PA - HITACHI LTD

TI - MANUFACTURE OF SEMICONDUCTOR DEVICE

AB - PURPOSE: To completely fill a contact hole with W by forming a tungsten silicide or tungsten/tungsten silicide film on an Si by a reaction of WF₆ with the Si at the initial of the reaction, and then growing a W film by H₂ reducing reaction of the WF₆ thereon.

- CONSTITUTION: A phosphorus glass film3 is deposited on a thermal oxide film2 on a P-type silicon crystalline substrate 1. Then, after 1 contact hole is formed at the film3, As ions are implanted, and heated to form an N<+> type high concentration diffused layer 4 in the contact hole. A tungsten film 6/tungsten silicide film 5 are firmed by a low pressure CVD method with WF₆ and N₂ on the contact. Thereafter, a tungsten film 6' is further grown on the contact by a low pressure CVD method with the WF₆

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and H₂. Subsequently, aluminum electrodes 7 are formed. Similar result can be obtained by employing a CVD oxide film silicon nitride, BPSG, SOG, etc., instead of the film 3.

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